Work Orde Wednesday, Aug												Page 1
Item ID: Revision ID:	D206-667-20			Accept				s s		Start		
Item Name: Start Date: Required Date: Reference:	Crosstube Turr 8/25/2010 9/1/2010	Start Qty: 1.00 Req'd Qty: 1.00	1 (8818) 1181 1881		Cust Item II Customer:	<b>)</b> :				Stop		
Approvals:	Process Plan	n:	Date:	Tooling: SPC (Y/N):	Da	_		F		Start Stop		
Sequence ID/ Work Center II		Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reje Qty		Reject Number	Insp. Stamp
Draw Nbr	Revi	ision Nbr										
D206-667-243	Rev	С				-04100-						
100 Mori Seiki		MORI SEIKI CNC LA	ATHE LARGE	0.00	mL 10/08	/28				2		·
Mori Seiki CNC Lat	the Large		e with sand & install plugs I 2-Turn first side as per Folio									
110 QC		QC1- Inspect dimensi	ions to dimension sheet	0.00	art 10/68	1/28				or .		
Quality Control				0.00								

Mori Seiki

MORI SEIKI CNC LATHE LARGE

ank 10/08/28

\_\_\_\_\_

Mori Seiki CNC Lathe Large

**Memo** 0.00

1-Turn second side as per Folio FA089□2-File down transition lines smooth. □

3-Remove sand and plugs □ 4-Scrib part# and batch #

#### **Dart Aerospace Ltd WORK ORDER CHANGES** W/O: **Approval Approval STEP** PROCEDURE CHANGE By Qty Chief Eng / DATE Date QC Inspector Prod Mgr Part No: \_\_\_\_\_\_ PAR #: \_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_ Date: \_\_\_\_ Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_ **WORK ORDER NON-CONFORMANCE (NCR)** NCR: **Corrective Action** Section B **Description of NC** Verification **Approval Approval** STEP DATE Sign & **Action Description** Initial Section C Chief Eng QC Inspector Section A Date Chief Eng Chief Eng

#### Work Order ID 61446

Wednesday, August 25, 2010 10:32:50 AM



Page 2

Item ID:

D206-667-203TRN

Accept

Setup Start



**Revision ID:** 

Item Name:

Crosstube Turning Detail

**Start Date:** 

8/25/2010

Start Otv: 1.00

Req'd Qty: 1.00

**Cust Item ID: Customer:** 

Reference:

**Approvals:** 

Process Plan:

Date:

Tooling:

Date:

Date:

Run

Start

Stop

Stop



Required Date: 9/1/2010

OC:

Date:\_\_\_\_\_

SPC (Y/N):

Set Up/

**Run Hours** 

Tool ID

Tool # Plan

Accept Qty

Reject Otv

Reject Insp. Number Stamp

Work Center ID

130

Sequence ID/

Quality Control

Operation Description

QC1- Inspect dimensions to dimension sheet

0.00

Minloglag

Code

140

QC

Quality Control

QC8- Inspect parts - second check

Memo

0.00

Memo

0.00

D 4B 10-08-30

150

HandFXtube

Hand Finishing Crosstubes

Crosstubes Chemical Conversion

0.00

Memo

0.00

W/O:	•		V	ORK ORDER CHAN	GES					
DATE	STEP	PRC	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector,
				and the state of t			-/		<u> </u>	
Part No	:	PAR #:	Fault Ca	tegory:	NCR	: Yes N	o <b>DQ</b> A	<b>\:</b>	_ Date: _	
	R	esolution:	Disposit	ion:	QA:	N/C Clos	ed:		Date: _	
NCR:		1	WORK OR	DER NON-CONFORM	IANCE	(NCR)				
DATE	STEP	Description of NC		ection B	Ciam 0	Verific		Approval	Approval	
	SILI	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date		Section C		Chief Eng	QC Inspector
	<u> </u>									

#### Work Order ID 61446

Wednesday, August 25, 2010 10:32:50 AM



Page 3

Item ID:

D206-667-203TRN

Accept

Setup Start

Stop



**Revision ID:** 

Crosstube Turning Detail Item Name:

**Start Date:** 

Required Date: 9/1/2010

8/25/2010

Start Qty: 1.00

Req'd Qty: 1.00



Date:

**Cust Item ID:** 

**Customer:** 

Reference:

Approvals:

QC:

Process Plan:

Date:\_\_\_\_\_ Tooling:

SPC (Y/N):

Set Up/

**Run Hours** 

Date:

Date:

Run

Start



Stop

Sequence ID/ Work Center ID

160

Quality Control

Operation **Description** 

QC3- Inspect Part Finish

Memo

0.00 0.00 **Tool ID** 

Tool # Plan

Accept Qty Code

Reject Qty

Reject

Insp. Number Stamp

170

Packaging Packaging

Packaging

Memo

Identify and Stock in kanban rack □ Location:

0.00

\$ MB 10-08-30

180

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

10/08/30 H

	•								
W/O:			W	ORK ORDER CHANG	BES				,
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
							۶.		
t.			•						
		•							
Part No	:	PAR #:	Fault Ca	tegory:	NCR: Ye	s No D	QA:	Date: _	
	R	esolution:	Disposit	ion:	QA: N/C	Closed: _		Date: _	
NCR:		•	WORK OR	DER NON-CONFORM	ANCE (NO	CR)			
DATE	STEP	Description of NC		Corrective Action Section B			fication	Approval	Approval
DAIL	SILF	Section A	Initial Chief Eng	Action Description Chief Eng				Chief Eng	QC Inspector
				,					
							<del></del>		
		·							
		·							
				,					
	1.								

## **Picklist Print**

Wednesday, August 25, 2010 10:32:55 AM

Work Order ID: 61446

Parent Item:

D206-667-203TRN

Parent Item Name: Crosstube Turning Detail



**Start Date: 8/25/2010** 

Required Date: 9/1/2010

Page 1

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:A 08-03-06 new issue DD verified by:ec

IPP Rev B 08.04.02 Removed polish EC verified by: DD

IPP Rev C 09.01.06

ECN 08-562

EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6004-115		Manufactured	No			100	Each	62.0000	1	1			

Crosstube Material

<b>Location</b>	Loc Qty	Loc Code
LG	62	
34685	17	
<b>-3</b> 4774	9	
38336	36	

- and 10/08/28

W/O:			WORK ORDER CHANGES							
DATE	STEP	PF	ROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		
Part No	):	PAR #:	Fault Category:	NCR: Yes	No <b>DQ</b>	A:	Date: _			
	Resolutio	n:	Disposition:	QA: N/C	Closed:		Date: _			

	WORK ORDER NON-CONFORMANCE (NCR)										
	Description of NC		Corrective Action Section B	Verification	Approval	Approval					
STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	QC Inspector				
	·			:							
	STEP	STEP Description of NC	STEP Description of NC Section A Initial	STEP Description of NC Section A Initial Action Description	STEP Description of NC Section A Initial Action Description Sign &	STEP Description of NC   Initial   Action Description   Sign & Section C	STEP Description of NC Section A Corrective Action Section B Verification Approval Chief Eng				

DART AEROSPACE LTD	Work Order:	4/1/46
Description: Crosstube Assembly	Part Number:	D206-667-243
Inspection Dwg: D206-667-243 Rev: B		Page 1 of 1

## FIRST ARTICLE INSPECTION CHECKLIST

X	First Article	Prototype
---	---------------	-----------

	spection Sheet awing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
-	2.490	+0.005/-0.000	2.490			Vern	PU57
	2.018	+0.005/-0.000	2.619			9	17
	2.079	+0.005/-0.000	2.084			И	te
	2.145	+0.005/-0.000	2.150			17	1/
	2.209	+0.005/-0.000	2.214	/		11	11
	2.287	+0.005/-0.000	2.292	/		<i>( (</i>	11
<b>  ∢</b>	2.363	+0.005/-0.000	2.368			11	- 1 4
SIDE	2.433	+0.005/-0.000	2.438	/		, (	1.
ြ	0.200	+/-0.010	200			1200	Mi 7
İ	0.500 x 30°	+/-0.010	2.50			Vern	110-7
	R0.063	+/-0.010	.500X30°			Q_("	11111
	R0.500	+/-0.010	R.500			8-1	1111
	4.438	+/-0.030	4.438		-	12esn	11-7
			7.120			VEIR	7107
	104.91	+/-0.020	104.930			M-tage	ML-2
	2.490	+0.005/-0.000	2.490			Vern	111-7
	2.018	+0.005/-0.000	2.019			11	11
	2.079	+0.005/-0.000	2.683			l <sub>t</sub>	l c
	2.145	+0.005/-0.000	2-150			11	C (
	2.209	+0.005/-0.000	2.214	/		t <sub>i</sub>	. (
m	2.287	+0.005/-0.000	2.292			и	<i>c</i> (
SIDE	2.363	+0.005/-0.000	2,368			Ч	ŧ(
୍ର	2.433	+0.005/-0.000	2,438			Ч	t(
	0.200	+/-0.010	-200			/(	14
	0.500 x 30°	+/-0.010	. STOX 36°			(1	11
	√ R0.063	+/-0.010	R-063			R-6	NIA
	R0.500	+/-0.010	R,500			1)	16
	4.438	+/-0.030	4.438	• /		Ven	ML-7

Measured by:	onl,	Audited by:	MB	Prototype Approval:	N/A
Date:	10/08/29	Date:	10-08-20	Date:	N/A

Rev	Date	Change		Revised by	Approved
Α	06.09.01	New Issue	(P/O D206-667-203)	KJ/JLM	ad
					7~/

W/O:		WORK ORDER CHANGES									
DATE	STEP	PRO	PROCEDURE CHANGE E			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		
								Prod Mgr			
			:		ļ						
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No <b>DQA</b> :		Date: _			
	R	esolution:	Disposition: QA: N/C Closed: _					Date:			
NCR:		1	WORK ORD	ER NON-CONFORMA	NCE (NCR	)					
		Description of NC	Description of NC Corrective Action		on B	Verificat	tion	Approval	Approval		
DATE	STEP Description of NC Section A	Section A	Initial Chief Eng	Action Description Chief Eng	on Sign & Section C Date		Sign &   Section C		QC Inspector		
						i i		1			
									ļ		
•								:			
									· .		
									1-10-1-		
		·									

Item	Qty -243	Part Number	Description
1	Х	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
- 8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHE SIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:** 

1) MATERIAL: MANUFACTURED FROM D6004-115

7

FINISHED LENGTH = 104.91±0.020

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

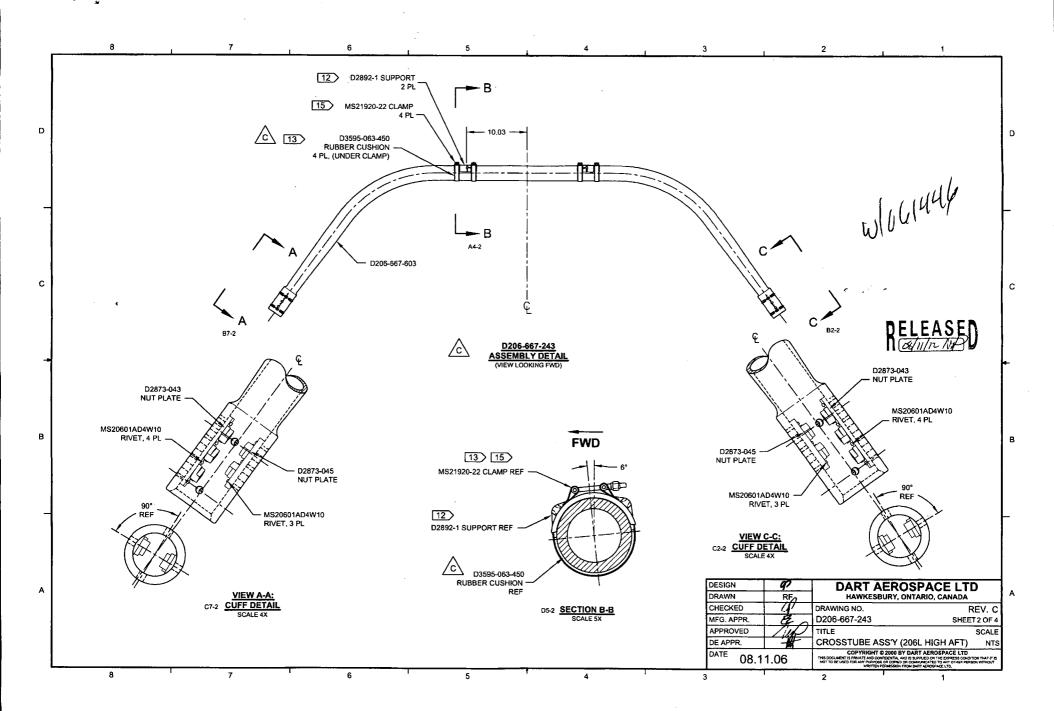
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 21.9 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY RETURNITO ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE WORK ORDER NO. GILLY

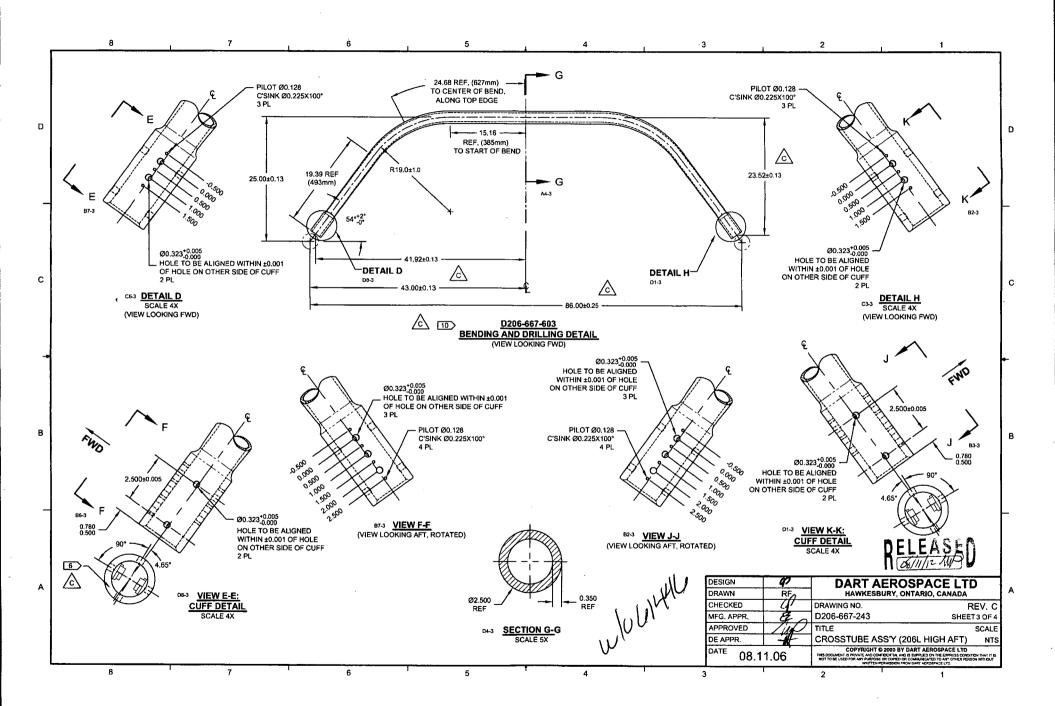
REVISE GENERAL NOTES/PART LIST (ZN D7-1): 08.11.06 REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210: MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4. ADD HOLES AND NUT PLATES FOR COMPATABILITY 05.07.26 WITH BHT/AA SKUDTUBES NEW ISSUE Α CP 00.11.17 REV. DESCRIPTION BY DATE DESIGN DART AEROSPACE LTD DRAWN RF, HAWKESBURY, ONTARIO, CANADA CHECKED DRAWING NO. REV. C MFG. APPR. D206-667-243 SHEET 1 OF 4 APPROVED TITLE . SCALE DE APPR. CROSSTUBE ASS'Y (206L HIGH AFT) NTS COPYRIGHT © 2000 BY DART AEROSPACE LTD DATE 08.11.06

6

	•									
W/O:			WC	ORK ORDER CHANG	GES					r.
DATE	STEP	PRO	PROCEDURE CHANGE				Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
				·				į		
							1-20-1-20-0			
							ì			
		PAR #:	Fault Category: NC			NCR: Yes No Do			_ Date: _	<del>.</del>
		esolution:				QA: N/C Closed:				<del></del>
NCR:		,	WORK ORD	ER NON-CONFORM	IANCE (N	CR)				
DATE	STEP	Description of NC Section A	Initial Action Description			gn &	Verification Section C		Approval Chief Eng	Approval QC Inspector
			Chief Eng	Chief Eng		ate	1.			
				· <u>- · · · · · · · · · · · · · · · · · ·</u>						

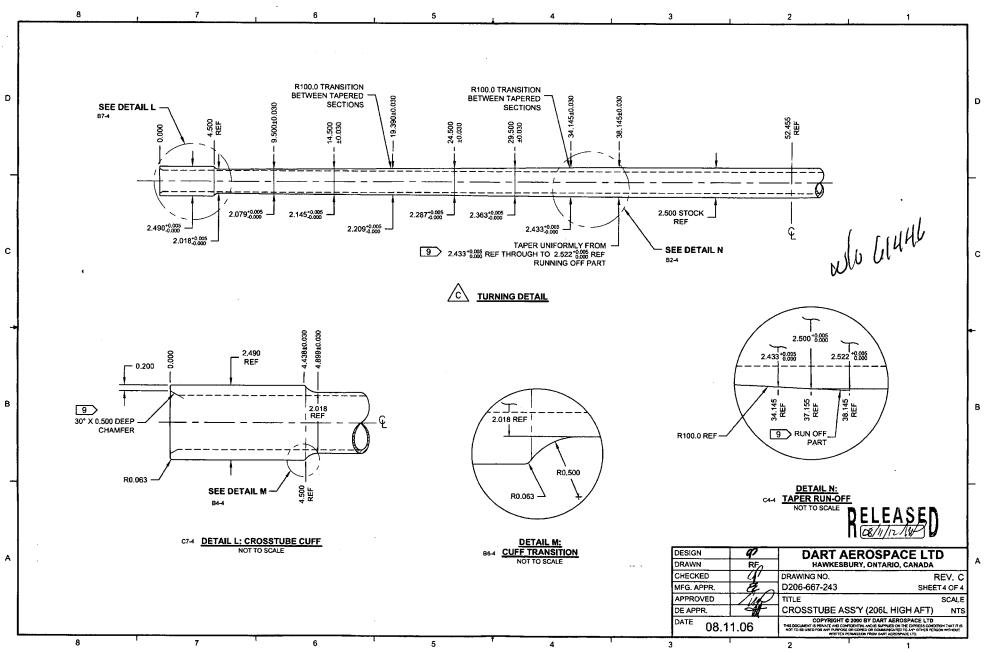


W/O:		WORK ORDER CHANGES										
DATE	STEP	PRO	PROCEDURE CHANGE By				Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		
							Ì	ļ				
									į			
Part No:		PAR #:	Fault Category: f			es N	o <b>DQA</b>	:				
Resolution:			Disposition	QA: N/C Closed:				Date:				
NCR:			WORK ORDE	R NON-CONFORM	ANCE (1	ICR)						
DATE	STEP	Description of NC			ction B		Verification		Approval	Approval		
DATE	SIEP	Section A	Initial Chief Eng	Action Description Chief Eng		ign & Date	Sectio	n C	Chief Eng	QC Inspector		
ľ		1			į .				Ł			



W/O:			WORK ORDER CHANGES							
DATE	STEP	PI	PROCEDURE CHANGE			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
								,	<del> </del>	
Part No	):	PAR #:	Fault Category:		NCR: Yes	No <b>DQ</b>	<b>\</b> :	_ Date: _		
	F	tesolution:	Disposition:		QA: N/C C	losed:		Date: _		

NCR: WORK ORDER NON-CONFORMANCE (NCR)							
	Description of NC		Corrective Action Section B	Varification	Ammuoval	Approval QC Inspector	
STEP	Section A	Initial Chief Eng			Section C		Chief Eng
ļ							
					-		
	9 15 m						
	STEP	STEP Description of NC Section A	STEP Description of NC Section A Initial Chief Eng	STEP Description of NC Section A Chief Eng Chi	STEP Description of NC Section A Chief Eng Chi	STEP  Description of NC Section A  Initial Chief Eng Corrective Action Section B  Initial Chief Eng Chief	STEP Description of NC Section A Description Section B Section A Section C Section A Chief Eng C



N/O:		WORK ORDE	R CHANGES					r "
DATE	STEP	PROCEDURE CHANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
			·					
							· ,	
Part No	):	PAR #: Fault Category:	NCF	R: Yes	No <b>DQ</b>	<b>A</b> :	Date: _	
		lution Disposition:	₹	N/C C	losed:		Date:	-

NCR:	:. <u>.</u>		WORK ORD	ER NON-CONFORMAN	CE (NCR)			
		December of	NO	Corrective Action Section E	3 .	Varification	Ammuoval	Approval QC Inspector
DATE	STEP	Description of Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	
<u> </u>								
:				A				
		**						,

NOTE: Date & initial all entries

3